**STIR**

| MRI Findings | Odds Ratio | (95% CI) | P-Value |
|---|---|---|---|
| **Subcutaneous HSI** | | | |
| Diagnosis DM vs Non–IIM | 17.95 | (3.996, 80.64) | 0.0002 |
| Diagnosis ADM vs Non–IIM | 3.033 | (0.622, 14.78) | 0.1697 |
| Diagnosis PM vs Non–IIM | 2.000 | (0.410, 9.756) | 0.3914 |
| **Fascial HSI** | | | |
| Myalgia | 4.485 | (1.563, 12.87) | 0.0053 |
| Diagnosis DM vs Non–IIM | 9.102 | (2.154, 38.46) | 0.0027 |
| Diagnosis ADM vs Non–IIM | 5.411 | (1.098, 26.67) | 0.0380 |
| Diagnosis PM vs Non–IIM | 0.604 | (0.166, 3.456) | 0.5714 |
| **Peripheral distribution** | | | |
| Age | 1.041 | (0.995, 1.090) | 0.0835 |
| Myalgia | 5.202 | (1.553, 17.43) | 0.0075 |
| Diagnosis DM vs Non–IIM | 22.93 | (4.517, 116.4) | 0.0002 |
| Diagnosis ADM vs Non–IIM | 1.222 | (0.233, 6.407) | 0.8123 |
| Diagnosis PM vs Non–IIM | 1.177 | (0.232, 5.965) | 0.8438 |
| **Diffuse distribution** | | | |
| Age | 1.071 | (1.023, 1.121) | 0.0031 |
| CK | 1.001 | (1.000, 1.001) | 0.0014 |
| Diagnosis DM vs Non–IIM | 3.836 | (0.837, 17.58) | 0.0835 |
| Diagnosis ADM vs Non–IIM | 1.487 | (0.226, 9.790) | 0.6800 |
| Diagnosis PM vs Non–IIM | 0.449 | (0.071, 2.822) | 0.3932 |
| **Patchy distribution** | | | |
| Age | 0.960 | (0.926, 0.997) | 0.0328 |
| Myalgia | 0.352 | (0.123, 1.007) | 0.0514 |
| **Honeycomb pattern** | | | |
| Age | 1.042 | (0.997, 1.090) | 0.0672 |
| CK | 1.001 | (1.000, 1.001) | 0.0064 |
| Diagnosis DM vs Non–IIM | 6.864 | (1.288, 36.58) | 0.0240 |
| Diagnosis ADM vs Non–IIM | 1.622 | (0.182, 14.44) | 0.6644 |
| Diagnosis PM vs Non–IIM | 0.201 | (0.020, 2.045) | 0.1753 |
| **Foggy pattern** | | | |
| CK | 1.001 | (1.000, 1.001) | 0.0422 |
| Diagnosis DM vs Non–IIM | 0.023 | (0.001, 0.351) | 0.0068 |
| Diagnosis ADM vs Non–IIM | 0.324 | (0.051, 2.045) | 0.2306 |
| Diagnosis PM vs Non–IIM | 1.035 | (0.250, 4.291) | 0.9623 |
| **SHSI pattern** | | | |
| CK | 1.000 | (1.000, 1.000) | 0.0975 |

**Gd–T1WI**

| MRI Findings | Odds Ratio | (95% CI) | P-Value |
|---|---|---|---|
| **Subcutaneous HSI** | | | |
| Diagnosis DM vs Non–IIM | 19.80 | (4.021, 97.44) | 0.0002 |
| Diagnosis ADM vs Non–IIM | 2.852 | (0.568, 14.33) | 0.2032 |
| Diagnosis PM vs Non–IIM | 1.528 | (0.294, 7.944) | 0.6144 |
| **Fascial HSI** | | | |
| Myalgia | 4.060 | (1.264, 13.04) | 0.0186 |
| Diagnosis DM vs Non–IIM | 13.69 | (2.743, 68.28) | 0.0014 |
| Diagnosis ADM vs Non–IIM | 5.611 | (1.023, 30.77) | 0.0470 |
| Diagnosis PM vs Non–IIM | 0.488 | (0.065, 3.631) | 0.4832 |
| **Peripheral distribution** | | | |
| Age | 1.048 | (0.991, 1.108) | 0.0998 |
| Myalgia | 12.36 | (2.316, 65.98) | 0.0033 |
| Muscle weakness | 5.363 | (0.803, 35.81) | 0.0830 |
| Diagnosis DM vs Non–IIM | 45.98 | (5.464, 386.9) | 0.0004 |
| Diagnosis ADM vs Non–IIM | 2.640 | (0.252, 27.64) | 0.4178 |
| Diagnosis PM vs Non–IIM | 1.235 | (0.158, 9.650) | 0.8404 |
| **Diffuse distribution** | | | |
| Age | 1.059 | (1.011, 1.109) | 0.0148 |
| CK | 1.001 | (1.000, 1.001) | 0.0047 |
| Diagnosis DM vs Non–IIM | 6.425 | (1.146, 36.03) | 0.0344 |
| Diagnosis ADM vs Non–IIM | 2.090 | (0.274, 15.96) | 0.4755 |
| Diagnosis PM vs Non–IIM | 0.557 | (0.070, 4.424) | 0.5803 |
| **Patchy distribution** | | | |
| Myalgia | 0.347 | (0.129, 0.933) | 0.0360 |
| **Honeycomb pattern** | | | |
| Age | 1.052 | (1.001, 1.106) | 0.0457 |
| CK | 1.001 | (1.000, 1.001) | 0.0219 |
| Female | 3.586 | (0.865, 14.86) | 0.0783 |
| Diagnosis DM vs Non–IIM | 18.50 | (2.614, 131.0) | 0.0035 |
| Diagnosis ADM vs Non–IIM | 2.589 | (0.234, 28.61) | 0.4377 |
| Diagnosis PM vs Non–IIM | 0.125 | (0.007, 2.349) | 0.1648 |
| **Foggy pattern** | | | |
| CK | 1.001 | (1.000, 1.001) | 0.0068 |
| Diagnosis DM vs Non–IIM | 0.053 | (0.004, 0.681) | 0.0242 |
| Diagnosis ADM vs Non–IIM | 0.273 | (0.025, 3.041) | 0.2895 |
| Diagnosis PM vs Non–IIM | 1.405 | (0.277, 7.128) | 0.6819 |
| **SHSI pattern** | | | |
| No variables entered | | | |

**Supplementary Figure S1** Most relevant clinical characteristics of patients for each MRI finding. Variables in the final model were reported. Variables with P < 0.05 are highlighted in light green. ADM, amyopathic dermatomyositis; CK, creatine kinase; DM, dermatomyositis; Gd-T1WI, gadolinium-enhanced fat-suppressed T1-weighted imaging; HSI, high signal intensity; IIM, idiopathic inflammatory myopathy; PM, polymyositis; SHSI, strong high signal intensity; STIR, short-tau inversion recovery.